# PATENT COOPERATION TREATY

# PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

| Applicant's or agent's file reference BURN1110WO | **FOR FURTHER ACTION** | see Form PCT/ISA/220 as well as, where applicable, item 5 below. |
|---|---|---|
| International application No. PCT/US05/05407 | International filing date *(day/month/year)* 18 February 2005 (18.02.2005) | (Earliest) Priority Date *(day/month/year)* 20 February 2004 (20.02.2004) |
| Applicant THE BURNHAM INSTITUTE | | |

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 3 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the Report**
   a. With regard to the **language**, the international search was carried out on the basis of:
      ☒ the international application in the language in which it was filed.
      ☐ a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b))
   b. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.
2. ☐ **Certain claims were found unsearchable** (See Box No. II)
3. ☐ **Unity of invention is lacking** (See Box No. III)
4. With regard to the **title**,
   ☒ the text is approved as submitted by the applicant.
   ☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,
   ☒ the text is approved as submitted by the applicant.
   ☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings**,
   a. the figure of the **drawings** to be published with the abstract is Figure No. _____
      ☐ as suggested by the applicant.
      ☐ as selected by this Authority, because the applicant failed to suggest a figure.
      ☐ as selected by this Authority, because this figure better characterizes the invention.
   b. ☒ none of the figures is to be published with the abstract.

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US05/05407

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8): **C07H 1/00( 2006.01),9/00( 2006.01),5/04( 2006.01),5/06( 2006.01);C07G 11/00( 2006.01);A01K 67/027( 2006.01);C12P 21/00( 2006.01),19/60( 2006.01);A23C 9/154( 2006.01);C12N 9/10( 2006.01);A01N 43/04( 2006.01);A61K 31/70( 2006.01)**

USPC: 536/1.11,4.1,22.1;800/14-18,7;426/580;435/74,193;514/23,25,42,62

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 536/1.11,4.1,22.1;800/14-18,7;426/580;435/74,193;514/23,25,42,62

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EAST, CAPLUS, BIOSIS, EMBASE, MEDLINE

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|---|---|---|
| Y | ASHIDA, H. et al. A Novel Endo-Beta-Galactosidase from Clostridium Perfringens that Liberates the Disaccharide GlcNAc-Alpha-4Gal from Glycans specifically expressed in the Gastric Gland Mucous Cell-Type Mucin. Journal of Biological Chemistry. 2001, Volume 276, No. 30, pp. 28226-28232, see pages 28229-28231. | 1-88 |
| Y | ZHANG et al. Immunohistochemical Demonstration of Alpha-1,4-N-Acetylglucosaminyltransferase that Forms GlcNAc-Alpha-1,4-Gal-beta Residuesin Human Gastorintestinal Mucosa. Journal of Histochemistry and Cytochemistry. 2001, Volume 49, No. 5, pp. 587-596, see pages 589-594. | 1-88 |

☒ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

20 March 2006 (20.03.2006)

Date of mailing of the international search report

28 APR 2006

Name and mailing address of the ISA/US

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Form PCT/ISA/210 (second sheet) (April 2005)

## INTERNATIONAL SEARCH REPORT

International application No.
PCT/US05/05407

C. (Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|---|---|---|
| Y | NAKAYAMA, J. et al. Expression Cloniing of a Human Alpha-1,4-N-Acetylglucosaminyltransferase that Forms GlcNAc-Alpha-1,4-Gal-Beta-R, a Glycan Specifially Expressed in the Gastric Gland Mucous Cell-Type Mucin. Proceedings of the National Academy of Sciences. 1999, Volume 96, No. 16, pp. 8991-8996, see pages 8992-8996. | 1-88 |
| Y | SUZUKI et al. Molecular Cloning and Expression of a Novel Beta-Gal-3-O-Sulfotransferase that Acts Preferentially on N-Acetyllactosamine in N- and O-Glycans. Journal of Biological Chemistry. 29 June 2001, Volume 276, No. 26, pp. 24388-24395, see especically pages 24389-24395. | 1-88 |
| Y | UJITA, M. et al. Synthesis of Poly-N-Acetylglucosamine in Core 2 Branched O-glycan. The Requirement of Novel Beta-1,4-Galactosyltransferase IV and Beta-1,4-N-Acetylglucosaminyltransferase. Journal of Biological Chemistry. 1998, Volume 272, No. 52, pp. 34843-34849, see especially pages 34845-34848 | 1-88 |
| Y | US 5,700,671 A (PRIETO et al) 23 December 1997, column 18, line 55 to column 30, line 2. | 1-88 |